

Intercomp Weigh-In-Motion technology helps REMPRES keep things moving at busy railway intermodal

Weigh-In-Motion technology delivers real-time weigh data acquisition for this integrator and helps fulfill the promise of automated gate operations.

Executive Summary

Intercomp technology integrates vital Weigh-In-Motion capabilities with REMPRES automated gate systems, providing first-of-its-kind solution for real-time container weighing data and enhanced operational throughput for a critical truck/railroad intermodal facility.

Background

Located just outside one of the largest cities in the US, a major Class I railroad carrier operates an around-the-clock intermodal terminal – one of the busiest and most important terminals for intermodal distribution, due in part to its proximity with a major shipping consolidation hub that accounts for approximately 40% of its outbound traffic.

On an average day at this busy intermodal facility, as many as 950 trucks deliver rail-bound containers and an equal number of outbound trucks receive containers from arriving trains – about one every minute.



Efficiency, reliability and safety are priority operational requirements at virtually every modern intermodal, railyard, port, distribution and transportation center. On an average day at the facility, as many as 950 trucks deliver rail-bound containers and an equal number of

outbound trucks receive containers from arriving trains. This active facility routinely loads and unloads up to a dozen fully-laden, 8,000 ft. Class I trains per day.

With this heavy level of terminal traffic, the rail carrier enlisted REMPRESX to equip the facility with its Automated Gate System (AGS) freight checkpoints. The REMPRESX system deploys automated gate



REMPRESX AGS automated freight checkpoints are replacing conventional manned gates at the intermodal terminal.

kiosks and optical recognition technologies to facilitate passage, security and identity validation, and terminal movement of trucks and containers, helping to optimize the terminal operations and provide data critical to traffic coordination. The rail carrier also identified the role that weighing can play in enhanced operations, asking Intercomp to collaborate with REMPRESX to help create a

first-of-its-kind solution for improving the facility's operational efficiency and collection of real-time data.



Automated gate kiosks and optical recognition technologies improve not only the efficiency of terminal movement, but also the accuracy and security of operations.

Challenges

As the rail carrier sought ways to move trucks and trailers more efficiently through their terminal, they were also working on another problem. Overweight containers have always presented a particular challenge and a lost opportunity for rail operators. Terminal operators had to rely on bills of lading as a single point of truth in container loads, or dramatically impact their operational flow by subjecting suspect loads to inefficient manual weighing, either via truck scale or with extra handling that ties up a valuable crane. Without the ability to efficiently and effectively weigh every container truck entering the yard, these decisions fell upon on-site personnel to subjectively identify and manually validate potential overweight, underweight or shifted loads, often creating bottlenecks and delays, as well as lost revenues and safety concerns. According to REMPRESX, yard hostlers were encountering containers as much as 30% overweight.

“Container weights are extremely important for proper planning and placement of container loads on trains, vessels, and barges because the compounding effect of inaccurate weights can cause safety and efficiency issues across all modes of transport,” said Gerry Bisailon, REMPRESX VP of Optimization and Engineering. *“For example, the number of locomotives on a train varies depending on the total weight of its cars, so inaccurate weights can result in poor train performance or wasted resources. Too much weight on barges and vessels can have obvious serious consequences, and*



The rail carrier used Intercomp's LS630-WIM™ portable scale to evaluate the benefits of integrating Weigh-In-Motion technology into their new automated gates.

“Accurately identifying the weight of a unit as it enters the facility enables load planners to avoid the delays, inefficiencies and accidents caused by under- and over-weight containers.”

Gerry Bisailon, VP of
Optimization and Engineering
REMPREX, LLC

too little weight is a potential for lost revenue. Accurately identifying the weight of a unit as it enters the facility enables load planners to avoid the delays, inefficiencies and accidents caused by under- and over-weight containers.”

Solution

The rail carrier had been evaluating Intercomp's LS630-WIM™ portable Weigh-In-Motion scales as proof-of-concept to help validate the percentage of under- and overweight inbound containers, as a prelude to deploying fixed weighing solutions at the terminal entrance. The carrier challenged Intercomp to explore the possibilities of integrating its Weigh-In-Motion technology seamlessly with the REMPREX system, and a collaboration was born.

Keith Jackson, REMPREX Director of Client Solutions, who managed the implementation, described the challenges of Weigh-in-Motion integration to the high pace of the AGS. *“Effective integration of Weigh-in-Motion requires the portal vendor to receive weigh data from the WIM system and then pass it along to the gate system or client system once the weigh data is tied to the portal passage of the vehicle. After testing of the data flow and timing, as well as tuning of the physical scales, we were successfully able to fully integrate the Intercomp WIM system with our CAMCO portals.”*

For this unique solution, REMPREX partnered with Intercomp to integrate their [Weigh-In-Motion \(WIM\) Strip Sensors](#) featuring robust, OIML R134-certified strain gauge technology. Acknowledged industry-wide as the most accurate and reliable means to weigh the largest truck-borne loads at speed, Intercomp WIM sensors are designed to perform in high-throughput and extreme temperature conditions that are a constant reality at the facility's location.

Integrated with the REMPREX AGS, the advanced capabilities of WIM sensors automatically record gross vehicle weights that are immediately verified against the carrier's bill of lading, simultaneously measuring axle weights to quickly identify uneven loads and load shifts that may become a safety issue for the intermodal's crane operators.

Intercomp's WIM sensors can be integrated into operating systems ranging from analog output to API. The systems collect axle, group, and GVW for attended or unattended systems with control barriers, traffic lights, cameras, and ticket or report generation for a wide range of applications. OIML R134 certified* and sized up to 13 ft (4 m) wide to accommodate oversized vehicles, the sensors are easily installed

within 3" (75 mm) wide channels in the pavement, offering minimal disruption and labor associated with installation and maintenance.



Pairs of Intercomp's WIM sensors were easily and quickly installed with little disruption to the terminal's operations



Bisaillon noted that in critical, 24/7/365 operations such as this, delays and interruptions for large scale installations or maintenance downtime are not feasible, or at best, very costly. Intercomp's largely maintenance-free technology and vastly simplified sensor installation provides another significant advantage versus other systems.

Results

In 2018, working closely with Intercomp engineers, REMPRESX deployed the first-of-its-kind integration of in-motion weighing and weight data acquisition to the facility's automated gates. This WIM solution has added a new dimension of highly-accurate, real time weighing and correlation of incoming container load weights, without compromising the throughput gains provided by the REMPRESX gate automation.

The rail carrier recognizes the importance of container weighing and its effects on their handling and operational costs, impacts on rolling stock and rail infrastructure, and safety in their terminal and transport operations. The advantages gained and capabilities enabled through a robust Weigh-In-Motion solution with the proven REMPRESX AGS system offers the carrier improved remote terminal operations and a new data stream from which additional revenues, safety standards and load controls can be maintained.

Jackson concurs, describing the customer benefits that have been gained by the Intercomp WIM system. *"The Weigh in Motion system successfully captures axle weights, gross vehicle weight, axle spacing, and vehicle speed for intermodal traffic. Our customer has been able to use this weigh data to identify traffic with misreported weights, which has been of great financial benefit to them and has created a safer rail environment."*

For REMPRESX, the capabilities of Intercomp's WIM solutions offer a vision into the future of their next generation solutions, as it works to further integrate its technology platform with the demands and variables associated with transportation. By integrating vital new data streams including weighing technologies, REMPRESX expects to leverage live data and its proprietary operating platform to provide more advanced and more efficient automation solutions, expanding into more advanced tracking and point-to-point monitoring, predictive actions and data-driven operational efficiencies.

"Our customer has been able to use this weigh data to identify traffic with misreported weights."

Keith Jackson
Director of Client Solutions
REMPRESX, LLC

Tim Ash, REMPREX Chief Solutions Officer noted how the Intercomp WIM solutions have helped add value to the REMPREX technology platform. *“The technology that REMPREX develops and integrates into operations provides visibility to all functions inside a terminal, helping us with compliance and fluidity. Everything we do at REMPREX is designed to improve the throughput of the supply chain and incorporating technology through good partnerships enables us to evolve intermodal through our solutions. The Intercomp WIM solution is a key piece of that evolution.”*

“The Intercomp WIM solution is a key piece of our technological evolution.”

Tim Ash
Chief Solutions Officer
REMPREX, LLC

Intercomp Technology Overview

Designed from NTEP/OIML approved scale technology, Intercomp Strip Sensors measure the magnitude of mechanical quantities such as force, torque, load and pressure to provide the system requirements specified with precision scale technology. This turnkey solution enables compliance with accepted metrology, standardization, testing, certification and accreditation used by legal metrology authorities and industries worldwide. Intercomp Strip Sensors are capable of meeting or exceeding ASTM E1318-09 Type III and COST 323 A(5) performance requirements, and certified to the OIML R134 Weigh-In-Motion standard.

WIM systems driven by Intercomp Strip Sensors can automatically record and display wheel-load weights, axle weights, gross vehicle weights and other parameters as needed, at a wide range of speeds. Violation codes and definitions can be customized by the user, enabling streamlined screening of traffic. The system is well suited for weight enforcement screening, direct enforcement, monitoring bridge loads, traffic data collection and conducting road research.

Intercomp Strip Sensors are available in three standard lengths of 59", 69" and 79" (1.5 m, 1.75 m, and 2 m). Custom lengths are also available. Installation consists of 1–4 pairs (2–8 strips) per lane.

Learn more about Intercomp WIM Strip Sensors

Used for tolling and various other Low- and High-Speed WIM applications, Intercomp WIM Strip Sensors combine the best attributes of a precision strain gauge-based scale and the robust form factor of an in-road strip sensor.

More information is available at intercompcompany.com, or contact Intercomp directly for application assistance.



ABOUT REMPRES

REMPRES creates customized intermodal logistics and transportation services solutions tailored to the goals of the facility customer by combining a broad suite of value-added services and technologies, including leveraging data insights, inspection and monitoring technologies, and human-assisted management from its centralized 24/7 Remote Operations Center (ROC). REMPRES delivers terminal efficiency, facilitating over 13 million gate transactions while maintaining full visibility to all areas involved in the gate process, on-site operational fluidity, and site performance.

rempres.com

ABOUT INTERCOMP

Intercomp Company is the world's largest manufacturer of highly-accurate, portable weighing and measurement products, including industry-leading, fully electronic, portable, static, in-ground and wireless scale solutions relied upon in aerospace, transportation, automotive, defense, industrial, agricultural and numerous other industries, worldwide. Headquartered in Medina, Minnesota, Intercomp is ISO 9001:2015 certified, with manufacturing facilities in the U.S. and the United Kingdom and services around the globe.

intercompcompany.com



Intercomp

3839 County Road 116
Medina, MN 55340, USA

T: +1 763 476 2531

E: info@intercompcompany.com

Intercomp Europe

Manor Farm, Manor Farm Road
Shurlock Row, Berkshire RG10 0PY UK

T: +44 118 932 0578

Additional offices in Germany, Chile and Singapore

intercompcompany.com